Docket No. 1592-0134P

REMARKS

The specification has been amended to provide a cross-reference to the previously filed International Application. The claims have also been amended to delete improper multiple dependencies. Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly solicited.

Attached hereto is a marked-up version of the changes made to the application by this Preliminary Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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1592-0134P

VERSION WITH MARKINGS TO SHOW CHANGES MADE

The specification has been amended to provide cross-referencing to the International Application.

IN THE CLAIMS:

Claims 1 and 5 have been cancelled

The claims have been amended as follows:

2. (Amended) An electro luminescence device comprising a p-type ZnTe substrate, [compound semiconductor crystal substrate comprising a Group 12 (2B) element and a Group 16 (6B) element in a periodic table,] wherein the electro luminescence device is produced by disposing a diffusion source including an element converting the substrate of a first conduction type into the one of the second conduction type on a front surface of the substrate; forming a pn junction by heat treating and thermally diffusing the diffusion source; and forming electrodes on front and rear of the substrate, and wherein dislocation density of the substrate is not more than 20,000/cm^2, or density of pits which are obtained by etching the substrate with sodium hydroxide aqueous solution at from 90°C to 130°C [is not more than 20,000/cm^2].

4. (Amended) The electro luminescence device as claimed in claim 2 [or claim 3], wherein density of inclusions having grain diameters of 0.3μm to 10μm on an interface of the pn junction,

the inclusions being able to be observed in a focal field of an optical microscope of X100 to X200 magnification, is not more than 100,000/cm^2.

6. (Amended) The electro luminescence device as claimed in any one of claim 2 to claim 4 [claim 5], wherein wavelengths of light emitted from both light emitting regions sandwiching an interface of the pn junction are different from each other.

10. (Amended) The method for producing an electro luminescence device as claimed in claim 8 or claim 9, wherein the diffusion source disposed on the front surface of the substrate comprises an element such that Gibbs' free energy of a compound which is formed by combining the diffusion source and impurity is smaller than Gibbs' free energy of a compound which is formed by combining [an] a constitute element in the substrate and the impurity at a diffusion process temperature, or a material including the element.

11. (Amended) The method for producing an electro luminescence device as claimed in [in one of] claim 8 [to claim 10], wherein the diffusion source is A1, Ga, In or alloy thereof.

12. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 8 [to claim 10], wherein the diffusion source is Cl, Br, I, or alloy thereof.

13. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 8 [to claim 12], wherein the element included in the diffusion source and gettering impurity in the substrate has a slow diffusion rate in the substrate compared with the element converting the substrate of the first conduction type into one of the second conduction type.

14. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 8 [to claim 13], wherein the impurity is at least one of O, Li, Ag, Cu and Au.

15. (Amended) The method for producing an electro luminescence device as claimed in claim 13 or claim 14, wherein the element included in the diffusion source, and gettering the impurity in the substrate is at least one of B, Si and C.

16. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 8 [to claim 15], wherein the diffusion source is deposited over the front surface of the substrate under vacuum by any one of a sputtering method, a resistance heating method, and an electron beam method.

17. (Amended) The method for producing an electro

luminescence device as claimed in [any one of] claim 8 [to claim 17], wherein a heat treating temperature at the diffusion is 300°C to 700°C.

18. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 8 [to claim 17], wherein a thickness of the diffusion source before performing the heat treatment is 1,000Å to 10,000Å, preferably, 1,500Å to 5,000Å.

20. (Amended) The method for producing an electro luminescence device as claimed in claim 18 [or claim 19], wherein a thickness of a remained diffusion source and a diffusion layer is not less than 100Å, preferably, not less than 300Å.

21. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 17 [to claim 20], wherein the diffusion source is Al or In, and the diffusion source is heat treated on a condition that diffusion time is longer than the one specified by a relational expression $Y= 2 X 10^5 \exp(-0.018T)$, showing a relation between diffusion time Y and a heat treating temperature T.

25. (Amended) The method for producing an electro luminescence device as claimed in claim 23 [or claim 24], wherein the substrate plane having the plane orientation from which a flat

plane is able to be obtained after etching is (111)Zn plane, (001) plane, or (011) plane.

26. (Amended) The method for producing an electro luminescence device as claimed in claim 23 [or claim24], wherein the substrate plane having the plane orientation from which a flat plane is able to be obtained after etching has an inclining angle within 10 degrees from (111)Zn plane, (001) plane, or (011) plane.

31. (Amended) The method for producing an electro luminescence device as claimed in claim 29 [or claim 30], wherein a treating temperature for the thermal diffusion is from 300°C to 550°C.

32. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 29 [to claim 31], wherein treatment time for the thermal diffusion is determined so as to have such a range that the diffusion source remains in not less than a predetermined thickness after the diffusion process.

33. (Amended) The method for producing an electro luminescence device as claimed in [any one of] claim 29 [to claim 32], wherein the substrate is any one of ZnTe, ZnSe and ZnO.

37. (Amended) The electro luminescence device as claimed in claim 35 [or claim 36], wherein the substrate is any one of ZnTe, ZnSe and ZnO.

41. (Amended) The electro luminescence device as claimed in claim 39 [or claim 40], wherein the substrate is any one of ZnTe, ZnSe and ZnO.